42 DETERMINATION OF SPECIFIC GRAVITY AND SOLID EXTRACT OF ALCOHOLIC BEVERAGES

42.1 Summary

42.1.1 The specific gravity of alcoholic beverages is measured on a specific gravity balance. Using the specific gravity and ethanol concentration, the solid extract is calculated for the determination of the sugar content of the beverage.

42.2 Reagents

42.2.1 Quality control red wine

42.3 Apparatus

42.3.1 125 mL Erlenmeyer flasks

42.3.2 Christian Becker Model SG-1 Specific Gravity Balance

42.4 Procedure

42.4.1 Fill a 125 mL Erlenmeyer flask with dH_2O. Submerge balance plummet in water and zero balance to 1.0000 (specific gravity of water).

42.4.2 Fill 125 mL Erlenmeyer flasks with each case sample. Submerge balance plummet in the sample and read the specific gravity to nearest 0.0001. Record specific gravity on wine worksheet.

42.4.3 Fill a 125 mL Erlenmeyer flask with quality control burgundy wine. Submerge balance plummet in the sample and read the specific gravity to nearest 0.0001. Record specific gravity on wine worksheet.

42.5 Calculation

42.5.1 Using the alcohol content and specific gravity of each sample, calculate solid extract from the following formula:

$$\text{Solid extract (g/100 mL)} = \frac{\text{specific gravity of sample} - \text{specific gravity of ethanol solution}}{K}$$

where K = 0.00386 units of specific gravity per 1.0 g glucose per 100 mL

42.5.2 Record solid extract to nearest 0.1 g/100 mL on wine worksheet.

42.5.3 Specific gravity of quality control burgundy wine must agree within 10% of the target (previously established mean for that control).

42.6 References

42.6.1 AOAC 15th edition, 962.12, 1990.

42.6.2 Laboratory Procedures for Enologists. Maynard Amerine, 1967, p 56.

42.6.3 Handbook of Chemistry. Alfred Lange, 10th edition, 1967, p 1015.